

Serial No. 10/714,767

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Filing Date: November 17, 2003

Title: IMPLANTABLE HEART VALVE PROSTHETIC DEVICES HAVING INTRINSICALLY CONDUCTIVE POLYMERS

AMENDMENT TO THE SPECIFICATION

Please amend paragraphs [0012], [0027], [0042], [0063], and [0092] from the published application as follows:

[0012] In one embodiment, the polymer layer is a product of in situ polymerization on the fabric. In another embodiment, the fabric is formed at least in part of filaments of integrally formed, intrinsically conductive polymer. In some embodiments, the polymer layer includes polypyrrole or derivatives thereof. In another embodiment of the invention, the polymer layer includes a polymer selected from the group consisting of polyaniline, polypyrrole, poly(vinylferrocene), ~~polyacetylene~~ ~~polyacetylene~~, polythiophene, polybithiophene, and derivatives thereof. The polymer can be doped with dialkyl-naphthalene sulfonate. While the present application presents a limited number of intrinsically conductive polymers and dopants, many other intrinsically conductive polymers have been and will be developed, and are also within the scope of the invention.

[0027] FIG. 10 is a photomicrograph of tissue taken from the polypyrrole coated Dacron doped with dialkyl-naphthalene-sulfonate, stained for Von ~~Willebrand~~ ~~Willebrand~~ factor showing a thin endothelial lining on the tissue surface.

[0042] Intrinsically conductive polymers or electroactive conducting polymers offer an alternative to coating or filled plastics and textiles. The average room temperature synthesized conducting polymers, however have processing limitations; they are brittle and expensive. However, solution-spun fibers and films of ~~polyaniline~~ ~~polyaniline~~ and poly(3-alkylthiophene) have been prepared. Thin films of many conjugated polymers can be produced electrochemically. Textiles of various kinds are reasonable choice as substrates for thin coatings of conducting polymers. Conductive textiles composites based on polypyrrole or ~~polyaniline~~ ~~polyaniline~~ result in structures showing surface

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resistances of 10-1000 ohms/square ( $\Omega/\text{sq}$ ). Conducting polymer textile composites have excellent adhesion and do not corrode.

[0063] Films prepared with the addition of hydrophobic doping agents form denser, more conducting, and stable films. The type of doping agent can have a considerable effect on the conductance and morphology of polypyrrole. Hydrophobic dopants that have been well studied include anthraquinone-2-sulfonic acid, 2-naphthalenesulfonic acid, and trichlorobenzene sulfonic ~~trichloroben~~sulfonic acid.

[0092] FIG. 10 shows Von Willebrand ~~Willibrand~~ factor stains of the thin endothelial lining of tissue associated with the electroactive-conducting polymer RBX-670 coated Dacron. The layer extends along the tissue interface, from the top-middle to the bottom-right in FIG. 10. FIG. 10 indicates that the intrinsically conductive polymer does not interfere with the endothelialization of the fabric surface.